

**How Vending Machines are contributing to Obesity and other Diseases**  
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Vending machines were first introduced in the United States in the late 1880's. These machines were used to sell chewing gum<sup>1</sup>. Modern day vending machines contain items that are a quick fix to a sweet tooth when an individual is in a hurry. These machines are full of soda pop, sweetened fruit juice, flavored water, candy, chocolate, potato chips and salted nuts. They are located in a variety of buildings such as schools, health care facilities, shopping malls, libraries and state and federal buildings. The convenience and instant gratification these machines provide are what make them so appealing; nevertheless, vending machines are contributing to obesity and other diseases by dispensing products that are loaded with calories, saturated fat, sodium, and sugar. Although promoted as a fundraising tool, the profits seldom even cover the cost of electricity used to dispense items, to light up and to refrigerate items.

Many individuals argue that it is their right as an American to have the choice to purchase foods from a vending machine. Adults especially argue that they understand the consequences of eating and drinking foods found in vending machines; they are grown adults and may make the decision to do so when they please. Others say that vending machines provide foods of comfort and they only purchase from them for a special treat every once and a while. All the individuals arguing for vending machines are right. Vending machines do provide comfort foods to many, and special treats to those who only use them every so often. Also, as an American, it is your right to choose what you eat when you want to eat it.

However, it is the job of public health to make the healthy choice the easy choice. Why not change the social norm of grabbing a bag of potato chips when stressed or drinking a soda pop at lunch? Why not better our health and the health of others by making it easier to grab fresh fruit when we need a quick snack or a glass of water when we are thirsty?

The convenience of vending machines and the products they provide are contributing to the extreme obesity rates Montana is experiencing. In 2009, 23.2% of the Montana adult population had a BMI of greater than 30 which classifies them as obese<sup>2</sup>. Obesity increases the chance of developing diabetes, heart disease, high blood pressure and some forms of cancer<sup>3</sup>.

The majority of food and beverages sold in a vending machine are high in calories. High energy or caloric intake directly affects obesity rates. The amount of calories an individual consumes must be balanced with physical activity to prevent weight gain. 3500 calories equals 1 pound. That means if an individual consumed an extra 100 calories per day they would gain approximately 10 pounds per



year. 100 calories add up fast; there are about 140 calories in a 12 ounce soda and over 250 calories in a chocolate, caramel and peanut candy bar.

Saturated fat content is also high in foods found in vending machines. It is found in items such as cream, butter, coconut, animal products, baked goods and processed foods. The American Heart Association recommends that an individual on a 2,000 calorie diet should not consume more than 16 grams of saturated fat per day<sup>4</sup>. A snack consisting of 2 large *Grandma's* chocolate chip cookies contain 6 grams or a *Hostess* fruit pie has about 9 grams of saturated fat. That is almost half of your daily limit. Saturated fats contribute to high cholesterol which in turn increases the risk of clogged arteries. Clogged arteries lead to heart attack and stroke.

Sodium is used as a preservative to give food a long self-life so it can survive in a vending machine. It can be found in processed foods, soups, condiments, and many canned foods. Large amounts of sodium ingested contribute to high blood pressure and increase the chances of suffering from a heart attack or stroke. The American Heart Association recommends individuals to consume about 1,500mg of sodium per day. This is less than 1 teaspoon of table salt<sup>4</sup>. An individual sized bag of pretzel sticks (1ounce) contains about 580mg of sodium. This is almost 40% of your daily sodium intake.

Another ingredient that is abundant in food and beverages found in vending machines is sugar. Sugar can be nutritive or non-nutritive. Nutritive sweeteners contain energy. Some of these sugars are known as sucrose, high-fructose corn syrup, dextrose, fructose, maltose and honey. Non-nutritive sweeteners contain no energy and are known as saccharin, sucralose, aspartame, acesulfame-k and neotame<sup>5</sup>. There is a metabolic response that occurs in the human body following the intake of nutritive sweeteners. This response has the potential to lead to insulin resistance and pancreatic  $\beta$ -cell dysfunction; which leads to the development of diabetes.

In conclusion, vending machines contribute to obesity and disease because of the products that are found inside. The concept of a vending machine that is so appealing is the convenience and instant gratification. The social norm has come to be grabbing quick, ready to eat processed food that is full of excess calories, saturated fat, sodium and sugar. These ingredients play a huge role in the development of obesity and ultimately numerous diseases. The presence that vending machines play in everyday life needs to be diminished.

## References

1. Encyclopedia Britannica Online. History & Society: Vending Machine. Available at: <http://www.britannica.com/EBchecked/topic/625061/vending-machine>. Accessed December 17, 2010.
2. Centers for Disease Control and Prevention. U.S. Obesity Trends. Available at: <http://www.cdc.gov/obesity/data/trends.html#Race>. Accessed December 17, 2010.
3. Malik VS, Popkin BM, Bray GA, Despres JP, Willett WC, Hu FB. Sugar-Sweetened Beverages and Risk of Metabolic Syndrome and Type 2 Diabetes. *Diabetes Care*. 2010; 33: 2477-2483.
4. American Heart Association. Diet and Lifestyle Recommendations. Available at: [http://www.heart.org/HEARTORG/GettingHealthy/NutritionCenter/HealthyDietGoals/Dictionary-of-Nutrition\\_UCM\\_305855\\_Article.jsp](http://www.heart.org/HEARTORG/GettingHealthy/NutritionCenter/HealthyDietGoals/Dictionary-of-Nutrition_UCM_305855_Article.jsp). Accessed December 17, 2010.
5. American Dietetic Association. Use of Nutritive and Nonnutritive Sweeteners. *Journal of the American Dietetic Association*. 2004; 104:255-275.